The background of the cover is a detailed illustration of five quail, likely Virginia quail, in a winter setting. They are standing in a field of snow, with dry, brown grass and reeds poking through. The quail have brown and white patterned feathers, with some individuals showing a distinctive white stripe on their heads. The illustration is signed 'JW' in the lower left corner.

Virginia Wildlife

FEBRUARY 1964

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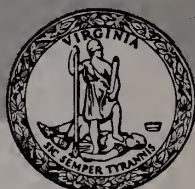
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JOHN W. TAYLOR

Virginia Wildlife

*Dedicated to the Conservation of
Virginia's Wildlife and Related Natural Resources
and to the Betterment of
Outdoor Recreation in Virginia*

Published by VIRGINIA COMMISSION OF GAME AND INLAND FISHERIES, Richmond, Virginia 23213



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FEBRUARY

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COVER: The bobwhite is a hardy and game little fellow, who faces his most crucial test in late winter when cover is scanty and food is sometimes hard to find. Our artist, John Taylor of Edgewater, Maryland, shows a covey "toughing" it out after a February snow storm.

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The Hunger Moon

MOST of us look upon February as a rather bleak and sorry time. Indians named it the time of the Hunger Moon, and with good reason. Modern man is inclined to spend this season indoors, wishing for spring.

If game biologists were to pick the most critical time of the whole year for wildlife in Virginia, they well might choose the month of February. It is indeed the time of the Hunger Moon for most residents of field and woodland. Only a few of the multitude who were there last fall will survive it.

However dreary overhead and however cold and wet underfoot the outdoors may be, a walk through the favorite haunts of the bobwhite and the cottontail in this midwinter season can be an enlightening experience, if one knows what to look for. And out of that enlightenment may come action that will bring improvements to these same coverts in years to come. The time to act is not far off, and if plans are not made now the opportunity soon will be lost to do the things that can be done to make the time of the Hunger Moon a little less severe next year.

Now is the time to see how much of the luxuriant cover of last November is gone, or beaten down until it provides no protection at all from natural enemies or the elements. Now is the time to note where the once abundant wildlife foods have all but disappeared. It is the scarcity of these things now, rather than the abundance of a few months ago, that limits the amount of game that will survive the winter. Thus a ceiling already has been placed on the coming season's potential increase; and already it is too late to raise that ceiling.

But other years are coming, and improvements made this spring not only can help assure that this year's potential will be realized; they also can help bring untold numbers of additional furred and feathered creatures through the leanest days next winter. The planning must be done now, and the work started soon, or another year's opportunity will have been lost forever. The only way to begin planning is to go out and see for oneself what needs to be done, and where, at this most crucial time when environmental limitations on wildlife abundance are so plainly displayed.

We heartily recommend a late winter visit to the game coverts, and, when you have returned, we recommend a reading of "Dick" Cross's article on pages four and five of this magazine.

Wildlife management need not be a job for landowners alone. It is a project in which every sportsman who hunts on the land can participate. The rewards go well beyond merely assuring that there will be game to hunt and a place to hunt it next year and the year after.

For those who would get involved in providing a better habitat for future generations of wildlife and of man, February need not be a depressing time of mere existence between seasons after all.

Elbert Hubbard made one epigram which is not only pithy, but also profound. He said: "To plow is to pray." One of the defects of our mechanized society is the decreasing proportion of people privileged to plow. The manipulation of game ranges is a new form of "plowing." (Aldo Leopold)—J. F. Mc.

Utilization Isn't "Exploitation"

I suppose editors are "damned if you do, and damned if you don't," but your trapping article this month [December] was hard to take. When will Virginia demand humane traps? Many of your articles are good, but I get the feeling that the Commission takes more interest in the exploitation than the protection of our state animals.

Gertrude Prior
Sweet Briar

Neither "exploitation" nor "protection" is the right word, really, to describe the Commission's interest and responsibility, but rather "sound management" which includes preservation of wildlife species and the utilization of sustained annual yields of game, fish and fur bearers for the benefit and enjoyment of man.
—Ed.

Approves Separate Opening Dates

I much enjoyed and appreciated your fine article in the December 1963 issue of VIRGINIA WILDLIFE, entitled "Can We Continue To Hunt Our Turkeys and Have Them Too?" Turkey hunting in Bath County has been an important seasonal event in my life for the past several years. It goes without saying that I look forward to future seasons.

I was especially interested in your comments relative to how a concurrent turkey and deer season adversely affects *quality* turkey hunting. (I think you will agree that quality deer hunting may be unfavorably affected also.) I am 100 per cent in agreement with your conclusions but think that there are some additional powerful reasons why deer (and bear?) season(s) should be separate from small game. First, there is the matter of weapons generally used in hunting big game as compared with small game. It seems that few deer hunters will pass up an opportunity to kill a turkey with a high-powered rifle. Often the result is a wretched trophy (with perhaps only enough body left to hold the wings together) and a waste of some wonderful meat. Conversely, those hunting small game sometimes shoot deer with small shot—a practice few would recommend. Also, hunters who are interested in bagging either deer or turkey (aren't most of them?) are faced with the dilemma of what weapon to carry. (No matter what weapon they take, many are to be frustrated before the end of each day's hunt.)

Separate seasons for small and big game not only solve the matter of *quality* hunting, stressed in your article; the dilemma of weaponry and choice, stressed in this letter; but also enhance the recreational aspects of hunting by reducing pressures and by extending hunting over a longer period of time.

Personally, I hope that in the future Virginians will see fit to ask for one to two weeks of small game hunting prior to deer season, as occurred in 1962.

R. Wayne Bailey
West Virginia Department
of Natural Resources

A Season for Thinking

By R. H. CROSS, JR.
Chief, Game Division

SHOULD I be asked to name the most unforgettable character I ever met it would be a rather difficult task to select only one from the number of outstanding gentlemen who have influenced my life in many ways. One of these, whom we shall call Mr. Walter, devoted 35 years to the preservation of hunting and fishing in Craig County, Virginia, before retiring with a most enviable record and the utmost respect of every outdoorsman privileged to know him.

Mr. Walter comes to mind at this particular moment because he once related to me a true experience which, I believe, illustrates a point concerning our almost universally accepted wildlife habitat management practices.

Late on a winter's evening in the 1920's, Mr. Walter was making his rounds through beautiful and mountainous Craig County when, just before dark, his valiant Model T ground to a halt on a snow-covered backwoods road and refused to budge. Mr. Walter was faced with two choices. He might retreat, on foot, along the roads over which he had just driven and reach home in about two hours. But he had heard of a foot trail up ahead that led directly up the side of the mountain, through a low gap and down the other side to Newcastle. If he could locate this trail, his long trek would be cut in half. The choice was obvious. Mr. Walter elected to walk a half mile to the nearest house, learn the location of the trail, and then get home in a jiffy. On the way to the house Mr. Walter remembered that it was occupied by two elderly, maiden sisters; one deaf and the other mentally unbalanced. He approached the house and rapped on the door. Since the deaf lady could not hear his knock, the other sister answered. Mr. Walter explained his plight and then asked, "Miss Emma, will you please tell me how to find the foot trail which is a short cut to Newcastle?" With this, Miss Emma threw up her hands and slammed the door, with these parting words: "That is the trouble with the world today! Everybody looking for the nigh-cut!"

If we listed wildlife management's problems today I believe we would certainly miss a major one if we did not include the fact that many of us are still looking for the "nigh cut." Think of the habitat improvement panaceas we have known. One of the earliest was Korean lespedeza, then sericea, followed by bicolor, milo maize, autumn olive, multiflora rose, ladino clover, annual game bird mixture and even artificial quail feeders. I am sure that no one who developed or first advocated the use of one of these plants or methods of feeding wildlife ever intended that it be considered a "cure all." Yet in our quest for "instant game" it is probably natural to play the long shots and hope for a miracle.

"Playing the long shots" might deserve further explanation. I have in mind past management practices we have known, such as planting without proper cultivation or fertilization; planting food patches without considering the lack of other habitat components, such as cover; and locating food plantings in coverts which already contain native food plants in abundance. Most important is the fact that result-

ing disappointments, due in most instances to lack of sound planning, have caused us to condemn too hastily some excellent wildlife food plants and habitat management techniques.

Consider this statement made by the late Dr. Aldo Leopold in his book entitled *Game Management*: "Game management and forestry grow natural species in an environment not greatly altered for the purpose in hand, relying on partial control of a few factors to enhance the yield above what unguided nature would produce. Their controls are barely visible; an observer, unless he were an expert, could see no difference between managed and unmanaged terrain. Hence their success depends more on the exercise of skill



Commission photo by Kesteloo
Have you ever wondered why a certain area maintains a covey of quail or a half dozen cottontails year after year . . .



Commission photo by Kesteloo
. . . while a seemingly similar area not far removed is consistently less productive?

in the selection of the right factors and the right controls, than on heavy investments of labor or materials."

It is jokingly said that every hunting license bearer is a self-styled game manager, and to me this seems to be an extremely healthy situation. For this reason, then, this season for every sportsman should be a season for thinking. And at this point, like Mr. Walter, we have two choices. We can wonder why we find game in certain coverts, or we can spend our time wondering why other coverts are bare. To me, the first choice is decidedly the most interesting. Furthermore, if we understand the reasons for game's existence in



Commission photo by Kesteloo
Effective game management alters the environment in ways that are barely visible to the untrained eye. A little fencing, a little clearing, and a little planting are the proven techniques.

one place we have taken the first step toward determining reasons for its non-existence in another. Did you ever wonder why a certain area maintains a covey of quail or a half-dozen cottontails year after year, while, on the other hand, a seemingly similar area not far removed is consistently less productive? Did you ever wonder what the differences might be between your favorite grouse hollow and those on the other side of the mountain where birds are seldom flushed? Answer these questions and you are well on the way toward the formulation of a sound game management plan. Apply generally accepted, short-cut management practices without first giving due consideration to local conditions and your efforts will most likely result in costly failure.

Going back to Dr. Leopold: "Game management and forestry grow natural species in our environment not greatly altered for the purpose at hand." In other words, management need not be spectacular in order to be effective. This point was well illustrated by C. H. Shaffer in his article, "A Negative Approach to Game Abundance," which appeared in the October, 1954, issue of *VIRGINIA WILDLIFE*. Shaffer offered the following negative procedures as a means to game abundance: "Don't violate your game laws; don't permit pets such as dogs and cats to run at large; don't harvest the last soybean or the last grain of wheat or the last ear of corn from every cultivated field; don't burn brush piles; don't clean up hedgerows and stream banks; don't cut den trees; don't shoot into leaf nests constructed by squirrels; don't destroy adequate native food and cover to make room for planted substitutes; don't shoot the last few quail in every covey or the last turkey in every flock." As pointed out by the author, these "don'ts" require no special effort, time or money, and yet strict adherence would result in more game for your enjoyment.

Commission photo by Kesteloo



What looks like productive game habitat in the fall may become barren and useless as winter coverts, and carry over no game to the next breeding season.

I would recommend that, in the evaluation of our favorite hunting areas, we give fair consideration to all of the "don'ts" or negative procedures first. Following full compliance here, we are now ready to determine the need for inclusion of positive practices to round out the improvement plan.

In many instances the fencing of stream banks, woodlots, stone outcrops, steep bluffs and gullied areas to prevent grazing is sufficient to enable native food and cover plants to grow and provide acceptable game coverts. Such places often support a lush growth of vegetation anyway during the growing season, and *look* like productive game habitat even in the fall; but unless they are fenced against livestock they quickly become barren and useless as winter coverts, and carry over no game to the next breeding season.

Judicious planting of Korean, sericea and bicolor lespedeza may further improve these areas for farm game species, but fencing and encouraging native food and cover plants should be given top priority. Establishing permanent field borders with similar planting materials, where they will facilitate the turning of farm machinery, is an effective game management technique. In all planting, however, there are pitfalls to be avoided. Soil preparation and fertilization are just as important for successful wildlife planting as they are in planting for production of field crops. Cultivation, rotation and fertilization are especially important when annuals are used to produce wildlife food patches.

Sometimes merely mowing strips through briar patches or other thick growth will encourage clovers and other food plants in close proximity to cover, and greatly increase the carrying capacity of the land for such species as the bobwhite and cottontail. Management of hardwood forests to achieve uneven-aged stands can bring in a cash crop of timber almost every year and assure more abundant wildlife food and cover at all times.

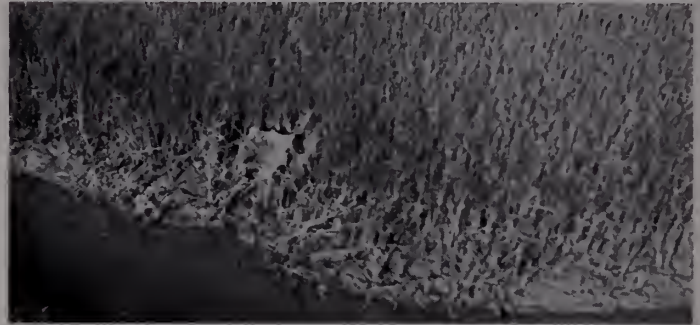
Game range manipulation is simply a matter of achieving adequate and balanced quantities of year around food and cover, each in close proximity to the other, with the greatest possible amount of "edge" between the two. Fencing and encouraging native vegetation, cutting, and a little planting in the right places, are the proven techniques. They are not spectacular, except in the increased supplies of game they sometimes produce in the fall. Fitted together into a sound, overall improvement plan, they yield rich dividends. Make this a season of thinking and planning for the future, and follow up with action when the planting and growing seasons roll around. You will be rewarded in many ways.





Commission photo by Kesteloo

Enforcement of license laws provides the funds upon which all other phases of the state's game and fish management programs depend.



Commission photo by Kesteloo
Commercial exploitation of sport fish and game means trouble. Here wardens spot a duck trap by aerial surveillance.

THE ROLE OF LAW ENFORCEMENT IN WILDLIFE MANAGEMENT

By CLYDE P. PATTON
Executive Director

North Carolina Wildlife Resources Commission

WITHOUT effective enforcement of hunting and fishing license laws, most state wildlife conservation agencies would suffer from an embarrassing shortage of funds for carrying on a game and fish management program. Without effective enforcement of laws and regulations on seasons and bag limits, few sportsmen anywhere would have an opportunity to get a fair share in the annual harvest of surplus game and fish.

Law and regulation are tools of game and fish management, but they are not worth the ink required to write them if they are not properly enforced.

Hunting and fishing licenses are worthless unless people buy them. Furthermore, when a price tag is put on a rabbit or a duck or a deer—when commerce rears its head among sport fish and game—trouble lies ahead.

These truisms reflect briefly the role that law enforcement must play in game and fish management.

While it is true that the Federal Government, authorized by the Pittman-Robertson and Dingell-Johnson acts, contributes to state wildlife conservation projects, these contributions are contingent upon the availability of substantial state matching funds. These funds are the license dollars produced by law enforcement. The situation reminds us of the kingdom lost for want of a horseshoe nail. For want of enforcement, the license dollar is lost; for want of the license dollar, the state matching fund is lost; for want of the state fund, the federal contribution is lost; and for want of both the state and the federal funds, state game and fish management programs cannot exist. They die aborning.

This financial fact of life cannot be ignored in any discussion of the role of law enforcement in state game and fish management.

It is not my intention here to dwell upon the negative effect that the absence of law enforcement would have on game and fish management. Rather, I intend to emphasize some of the positive effects of existing law enforcement on wildlife programs.

The specific objectives and techniques of game and fish management are not always identical—nor should they be. They must necessarily vary with the species of wildlife concerned, the available habitat, ecological requirements, human populations and sportsmen's preferences. In my view, a basic purpose of wildlife management is to provide a maximum harvest of game, fish and fur for the hunting, fishing and trapping public within bounds described by such potentially conflicting interests as agriculture, forestry, industry and the expansion of modern civilization.

The wildlife enforcement officer's services are vitally necessary if this precept is to be meaningful.

First, he enforces license laws to make certain that sportsmen who harvest game and fish share in the cost of producing it.

Second, he enforces the bag, creel, and possession limits to insure that those who have paid for the privilege and who seek the opportunity may—with reasonable skill and perseverance and some additional luck—share equitably in the harvestable surplus.

A "fair share" in the harvest?

Commission photo by Harrison



From an address made at the Annual Convention of International Association of Game, Fish and Conservation Commissioners.

Third, after the harvest, he must enforce a closed season to protect adequate breeding stock for the production of a substantial surplus in the ensuing year.

Enforcement of the laws and regulations limiting the methods and means of taking wildlife and prohibiting its sale insures that hunting and fishing remain recreational pursuits rather than commercial operations.

The aesthetic and therapeutic values of the sports of hunting and fishing cannot be measured in dollars and cents. But there is this certainty. If all of the game and fish were taken by the most expedient methods and the most efficient means, and then were sold over the counters of food stores or served as exotic dishes on restaurant tables, the total income would be but a small fraction of that provided by those who have the dollars to spend and who are eager to spend them on guns and shells, tackle and bait, transportation and guidance, food and lodging, and many other goods and services sportsmen like or need.

Education is an important factor in obtaining the cooperation of the public in the game and fish management effort. This is of particular importance in the case of citizens who own most of the land upon which fish and game management efforts are expended. The responsibility for public education is, of course, principally that of the public relations or education department of the conservation agency. Yet, the enforcement officer necessarily does—and functionally should—have a role in the educational process. It is regrettably true that many good citizens must receive their first effective lesson in wildlife conservation from the judge of a criminal court. This is not as it should be and it does not add to the credit or popularity of the conservation agency and its personnel. There is no substitute for firm enforcement. But it is as much the duty of the officer and his organization to use all reasonable means to secure voluntary compliance with the law as it is to prosecute offenders for noncompliance.

There is another facet of the educational process which may not gleam so brightly. But it is a facet with which the wildlife conservation agency must live. The number of citizens who have direct contact with the executive head or with the chief game and fish management personnel is an exceedingly small fraction of the total population. Yet, almost every citizen who lives long enough to vote comes in contact with a conservation enforcement officer. Through such contact, the average citizen forms an opinion of the wildlife program. It is the window through which he views the work of the wildlife agency including such activities as regulation, management and research.

Heretofore, I have referred to game and fish management and law enforcement as two separate and distinct functions, and in the narrow sense I think this is permissible. In the broad sense, however, I believe the term wildlife management embraces the total productive effort of the conservation agency and all of its functions—functions which have been artificially segregated and mentally delimited by the administrative necessity of classifying job skills and delegating responsibilities.

We envision that the total wildlife conservation effort can be resolved into five interrelated and interlocking functions, none of which is the separate and sacred property of any division or group in our organization. These five functions are (1) research, (2) management—in the technical sense,



Commission photo by Harrison
Enforcement of laws limiting the means of taking wildlife insures that hunting and fishing remain recreational pursuits.

(3) regulation, (4) education, and (5) enforcement.

Research provides the facts about wildlife populations and the biological factors which aid, limit, or prevent their reproduction, growth, and survival. This knowledge is put to work on management practices to create or augment favorable wildlife conditions and to eliminate or diminish unfavorable factors. The regulations, based on existing and anticipated conditions, establish necessary and reasonable limitations on human activity for the purpose of insuring maintenance of adequate reproductive stocks of useful wildlife and provide equal opportunity to enjoy the surplus. Education seeks to enlist the aid and cooperation of a sympathetic public through dissemination of scientific and practical information.

It cannot be denied that each of these first four functions—research, management, regulation, and education—is a necessary component of any successful wildlife conservation program. In the absence of enforcement, however, they would be ineffective in accomplishing the desired objective. All of the knowledge from research when put to work in practical management could not produce enough game and fish to satisfy the unrestricted appetites of our Nimrods, the followers of Izaak Walton, or those who would buy and sell valuable wildlife for financial gain. Volumes of laws and regulations are useless if unobserved. All of the persuasion of education at its best cannot obtain sufficient voluntary compliance to save desirable wildlife from being killed out.

In conclusion, although the wildlife enforcement officer is a participant in all of these functions, his primary duty is to bring about public compliance with all laws relating to wildlife conservation. His work gives useful forms of wildlife an opportunity for reproduction and survival. It affords the overall conservation effort with its only chance for success. Programs which provide better hunting and fishing recognize the important role of enforcement in game and fish management and give it the attention and emphasis which it deserves.

Commission photo by Kesteloo



The Case for the Handgun

By R. W. McLAUGHLIN
Staunton

THE biggest question facing the sportsman today is: "How can we get more high quality recreation for more hunters from available game supplies?" This is a nationwide cry, heard everywhere.

Virginia has one opportunity, at least, to meet this demand because it is one of the very few states where handgun (pistol or revolver) hunting is forbidden.

Available game supplies will go father if hunting with suitable handguns is permitted, because a true handgun shooter gets a bigger thrill out of locating, stalking, and shooting one piece of game with a pistol than he would get from shooting ten birds or animals with a shotgun or rifle. More hours of recreation will be derived per head of game killed, which is the essence of good game management. No special season is necessary, and no special rules. Just limit the handgun to reasonable adequacy, and let it fall under existing rifle regulations.

In order to judge the propriety of hunting Virginia's game and unprotected wild animals and birds with a pistol, it is important to assess the tremendous cycle of developments which have taken place in both guns and ammunition.

There is no question that a tremendous amount of wild game has been killed with pistols since the days when the big .45 caliber was a working tool—and a most effective one at close range—throughout much of our country. In those days many rifles and revolvers were made to shoot the same identical ammunition, with the pistol having as good accuracy and effectiveness at 40 or 50 yards as the rifle had at 100 or 150 yards.

Then, over a period of a good many years, the revolver was laid aside as a working tool. The flat automatic and "belly guns" were introduced to the market during prohibition and gangster days, and the pistol fell into a period of disrepute which caused a few states to disqualify it as a hunting weapon.

Recently the arms companies started building superbly accurate and reliable single shot and semi-automatic pistols and revolvers for target use and hunting, and these were matched by the development of fine, powerful cartridges. One of the first of these was the .357 Magnum, having a velocity about double the old .38 calibers, and later the .44



This photograph shows the newest thing in handguns. It is a Remington .221 caliber firing a jacketed bullet at about 2600 feet-per-second velocity. Its basic mechanism is a rifle type bolt action. Mounted with Bushnell telescope sight and steadied by a sandbag, fence post or such, it will consistently shoot into a two inch circle at 100 yards. Few hunting rifles will do any better. It was developed for varmint shooting. The proposed legislation would permit its use for this purpose but would rule it out for game shooting because it is smaller than .23 caliber. The telescope can be used on any of the handguns shown here, except the automatic at bottom of page.

Magnum, which is the most powerful handgun made today. More recently, three high velocity smaller bore cartridges have been developed. They are the Remington .221 Fireball, the Remington .22 Jet and the .256 Winchester Magnum. All these are superbly accurate at ranges over 100 yards. Fine rifles are now being produced to handle all of these calibers for those who do not have the steady hand or the inclination to shoot the pistol. Thus, we have gone around a complete cycle during the past 50 years, back to using the same ammunition in long and short guns.

For these new "Magnum" cartridges—as well as for some of the better older ones—fine quality revolvers and single shot pistols are now available for the man who wishes to enjoy the light weight of the pistol and still be able to hit the target accurately at ranges up to 100 yards.

The latest development is a telescope sight which can be readily mounted on these handguns to further refine their accuracy so that placing a humane killing shot into an animal as small as a woodchuck (groundhog) at 100 yards is a common experience with capable pistol shooters.

Although one of the greatest attractions for pistol hunting is "varmints" and small game, some of Virginia's western counties are particularly inviting to the pistol hunter for deer and bear where one must climb steep, heavily wooded hills—sometimes requiring both hands for climbing—and where weight is a premium and long shots uncommon.

With these points in mind, last summer a large group of Virginia sportsmen established as their spokesmen the Handgun Hunting Committee of the Stonewall Rifle and Pistol Club of Staunton for the purpose of entering into a

(Continued on page 21)



This Smith and Wesson revolver is made in the hot new .22 Jet cartridge, the .357 Magnum, .44 Magnum, .45 caliber and others. In .45 ACP caliber this particular gun has efficiently killed a deer, grouse, and groundhogs in one of the many states where handgun hunting is permitted. It and its mate in .357 Magnum, firing the .38 special cartridge, have been the author's favorite center-fire target guns for years in match competition. This type of revolver, produced by several reliable manufacturers, is perhaps the most versatile, dependable and popular handgun in use today.



A new model automatic target pistol, having a "muzzle brake" to minimize bounce, even though it is only .22 rim fire caliber. It is extremely accurate for target work and suitable for varmints. Similar shorter barreled versions are popular in the fisherman's kit for shooting snakes and predators that damage fishing.

The Lake Cooperation Built

By DOROTHY E. ALLEN
Education Officer

MEMBERS of the Fairfax County Park Authority couldn't have missed the enthusiasm of 2,000 happy anglers that day, nor failed to overhear some of the jubilant comments that were tossed back and forth on the banks of Burke Lake when that newest and largest of the Game Commission's public fishing impoundments was opened last May.

"Man, what fishing!"

"Say, you know Dick's boy, little Ricky? He's only nine, and never fished artificial lures before, but he got his limit."

"Yeah, we were only keeping bluegills that were close to a pound and . . ."

"Hey, Mom, look what I caught!"

If Park Authority members were delighted with the reaction of northern Virginia people to the opening of Burke Lake they had good reason to be, for this had long been a pet project of theirs, and now it had come to pass. They could reflect with satisfaction on how it had all begun.

By the early 1950's far-sighted Fairfax County citizens could see their essentially rural domain rapidly developing into a metropolis of subdivisions and shopping centers woven in a web of concrete highways. They realized there was an essential need for something more than supermarkets and drive-ins. There was and would continue to be, for the expanding population, a *need* for recreation in the out-of-doors. Businessmen needed a place where they could take their sons fishing and their families for a day's outing. The Fairfax County Park Authority was established to meet these needs.

In 1959 the Izaak Walton League, the Sport Fishing Institute and other conservation organizations proposed to the County Park Authority that funds be raised to purchase land necessary for the construction of a public fishing lake. Mr. H. G. Bauserman, Sr., Game Commissioner for the Tenth District, was instrumental in making local sportsmen's desires for such a lake known to the Commission of Game and Inland Fisheries. Game Commission employees began the difficult task of finding a suitable site which would conform to the rigid specifications necessary to provide a well managed public fishing lake. Considerable leg work by supervising warden Fred Brown, district fisheries biologist Jack Sheridan and many willing sportsmen in the area uncovered an excellent 218-acre site near Burke, some eight miles southeast of Fairfax, Virginia. The Park Authority cooperated with sportmen groups and spearheaded a drive to obtain by public subscription some \$92,000 necessary to purchase the property. Subscriptions fell short, but through the members' efforts the Park Authority made up the difference.

The land for the lake, including a buffer strip and parking lot, was purchased and deeded to the Game Commission. The Commission allocated \$148,000 to clear the site, build the dam and construct a parking lot and boat ramp. This proved to be the largest constructed by the Commission so far, and the first example of an agency of county government in Virginia cooperating with the Commission to provide a public fishing site.

In July 1961 the dam was completed and the lake started filling up. September through November of that year saw 125,000 bluegills, 43,000 redear sunfish, 4300 channel catfish, and 27,000 largemouth bass stocked by Bob Martin, chief of the fish division, and fish biologists and game wardens of the area. The lake has a small watershed area making it ideally suited to intensive fertilization. A tagging experiment conducted in early October 1962 gave some indication of the lake's fishing potential when the crew of fishery technicians caught, tagged and released 777 bass in a few hours using standard fishing tackle.

Opening day, May 25, 1963, finally arrived. What a jubilant group of anglers attended! At a special ceremony Mr. Bauserman made the official opening address. Over 2,000 fishermen watched Mr. Bauserman cast the first line. The 1,104 anglers checked by Commission personnel accounted for 3,699 largemouth bass, 723 bluegills, some other sunfishes and 27 catfish that first day. The bass averaged 10 inches and weighed about $\frac{1}{2}$ pound each. Bluegills were exceptionally large, ranging between $\frac{1}{2}$ and $\frac{3}{4}$ pound in weight, with a few topping the pound mark. Angling success was quite high, averaging over four bass for each angler checked. A creel limit of five was placed on bass, which dominated the catch, and the majority of anglers checked were reported to have their limit. Some caught and released the equivalent of several limits during the course of the afternoon's fishing. Only a handful of anglers failed to catch any fish.

Burke Lake had proved to be successful thus far, but what about the rest of the year and time to come?

The Commission offered a reward of \$1 each for tags returned with the date of the catch and the weight of the fish. Tag returns revealed that 70 per cent of the adult bass available in Burke Lake were caught. Due to the heavy initial harvest a lull in fishing resulted in June and July. Seining samples, however, showed that the brood fish had successfully reproduced. The removal of adults left more food for the young and by September they had grown to catchable size. Several bluegills caught were among the heaviest in the state, weighing over a pound. Burke Lake became the most heavily fished body of water in the state, with more fishing pressure than famous 25,000-acre Back Bay. It is expected that in future years Burke Lake will support an annual fishing pressure of 150 to 200 trips per acre. This amounts to 30,000 to 40,000 fishing trips per year, which are expected to yield a pound of fish per trip from this 218-acre impoundment. In view of the heavy fishing pressure recorded at Burke Lake during the first summer, a 12-inch minimum size limit was put on bass effective January 1, 1964. There is a creel limit of five bass and 25 bluegills and none for channel catfish.

Burke Lake is proving that by good management of impounded water it is possible to provide sustained yield fishing for the public. Burke is an example of a properly planned and constructed lake providing a great deal more good fishing than a lake that is just built in a so-called "likely looking area." Considerations that must go into the selection of such a suitable site for a *manageable* public fishing lake are: ratio of watershed area to size of impoundment; quality of the water supply; capability to control rough and undesirable fish species native to the watershed; and

(Continued on page 20)



The Golden Mouse

By ROGER H. de RAGEOT

*Professor of Natural History, Norfolk Botanical Gardens
Curator, Norfolk Museum*

KNOWN since the time of our earliest naturalists such as Audubon, Harlan, and Bachman, little has been written concerning the habits of the golden mouse—attractive and perhaps most intriguing of all small North American mammals.

Well adapted for an arboreal existence, this dainty mouse almost always prefers honeysuckle, and other thick, jungle-like habitats of the Dismal Swamp where it is common, especially the cane thickets which cover vast areas of this impressive tangled wilderness seldom visited except by hunter, lumberman, and occasional naturalist. An interesting fact is that golden mice have tails that are at least semi-prehensile and enable these agile climbers to accomplish all sorts of acrobatic feats. They have been observed hanging almost at right angles to a branch with only hind feet and tail as support. By using their tails they can stand upright on narrow branches.

The golden mouse builds a graceful bird-like nest, which is always well lined with finely shredded inner bark. Most often placed in a cane, though also found among vines, bushes or the lower branches of a tree, this masterpiece of architecture consists of well interwoven cane leaves, and reminds one in its appearance and structure of the nest of the marsh wren.

Besides well constructed nests the elusive little rodents build feeding platforms, more numerous than nests and therefore more commonly noticed by an investigator. Ratio of platforms to nests is usually five to one. Feeding platforms that are being used do not have the entrances plugged like the nest, and are generally more loosely constructed. Sometimes, however, feeding platforms may be converted into nests, or vice versa. The bottom of these platforms is generally a solid mass of seed shells discarded after the content has been eaten. Sometimes seeds may be found there which have not been eaten, and which probably were left for future consumption. It is possible that different families of mice use the same feeding platforms.

Numerous wild seeds are eaten by the golden mouse. Greenbrier (genus *Smilax*), sumac (*Rhus*), dogwood (*Cornus*), and wild cherry (*Prunus*) seeds seem to be preferred items of diet in the Dismal Swamp, but in captivity he will eat a variety of food, including bird seeds, apples, oranges, and corn. I have found that sunflower seeds are one of his favorite foods.

Unique in the golden mouse is the fact that he has the best developed cheek pouches of any of the mice of the genus *Peromyscus*. Extending from the lip backward over the masseter muscle, the structure is very thin, transparent and easily overlooked in dissection. These cheek pouches, most important in transporting food to the feeding platforms, contain several seeds when filled to capacity. A mouse in captivity observed with bulging pouches was found to have a large sunflower seed in each of the pouches.

In the Dismal Swamp golden mice breed from March to November, and the gestation period is from 29 to 30 days. They are not as prolific as other rodents of their genus, the number of young at birth never being more than four, often only two or three. They will breed readily in captivity, where it is a fascinating thing to watch the growth of the tiny young. One can hold the entire brood in the palm of his hand and watch the mother clean and fuss over the little ones, which she does without apparent anxiety or nervousness, except for poking an inquisitive pink nose about now and then.



Photo by author
Aided by a semi-prehensile tail, the golden mouse is an agile climber. He builds graceful nests and feeding platforms in the tall cane.

The female is one of the most solicitous mothers I have observed among mammals. She hovers over the tiny young and attends them with great care. If forced to leave the nest or handled, the young will remain attached to the teats and are carried along in this manner, hanging on like a bunch of grapes. This characteristic which I have not observed among other rodents is indeed one of the most interesting traits of the golden mouse. If by chance a young loses its hold and becomes detached, the mother will immediately but gently grasp it by its hind or front leg, stomach side up, and carry it in her mouth with great care. The young is adjusted for the hold by manipulation with the front feet.

If a female dies before her young are old enough to eat and care for themselves, another female with a litter will readily adopt the orphans regardless of their size.

It is my belief that were this intelligent, docile, and very

gentle mammal much better known than it generally is, the golden mouse would more often be encountered among the favorite pets of mammal enthusiasts. Hand-raised young captured just prior to or after the eyes' opening, or those born in captivity, make the best pets. They are then very easy to raise with condensed milk and soft foods.

Growth pattern for the young is generally as follows: short dark brown hair first appears over the back and hips after the fifth day. The eyes open, as a rule, between the 11th or 14th day, after which the young will move about the cage freely. During that period they are able to eat soft foods, such as slices of fruit or bread dipped in milk.

The home range of the golden mouse is undoubtedly small. Trapping, although not too effective since golden mice do not spend much time foraging on the ground, has indicated that night forays extend only a short distance from the nest. The best way to capture golden mice in the great Dismal Swamp of Virginia is to encircle a nest with your hands, difficult at times because of the thick tangles of vines or other vegetation. A quick grasp with both hands is the best method and prevents the escape of any occupants. The nest should be then opened carefully to see if any mice are present. This method works best, at least in my experience, on bright sunny days. On dark cloudy days and near dusk most of the mice will leave the nest at the slightest noise, a fact which seems to indicate that they are more nocturnal than most mice of the genus.

They are very clean little rodents and very seldom are droppings found within the nest, the animals having a regular station for urination and defecation well removed from the nest.

In raising golden mice I have never yet found it necessary to remove the male from the cage, or for that matter any of the other golden mice occupants. They are so gentle that none bothers in any manner the female or her brood, and all seem to live in perfect harmony.

WORTHY CLUB PROJECT

The Clarke County Conservation Club has made a gift of a complete set of books on conservation to the Clarke County High School. The selection of the individual titles was left to Charles E. Miley, Jr., principal of the school.

The list of books from which the selections were to be made was prepared by the Virginia Resource-Use Education Council, and procured for the Clarke County Conservation Club by game warden Blake S. Denney of Berryville.

This list contains about 30 titles covering the field of conservation generally and specifically on the subjects of birds, mammals, reptiles, fish, trees and forestry and rocks and minerals.

These books will be placed in the high school library and will be available for the essay contests in the field of conservation and also for general reference and research purposes.

Robert L. Cooke, club president, in making the announcement stated that the Conservation Club feels a deep responsibility to impress upon the young people of the community the vital necessity of preserving the natural resources of the country and that "conservation is essentially wise use without abuse."

Mr. Miley expressed the gratitude of the school authorities in accepting the gift and stated that he was confident that the books would receive wide use by these students.



By EV'S GUNNER FDSB 633368
as confided to R. F. MARION
Richmond

HONESTLY, I thought the boss had gone mad. Early spring and he was oiling up his gun. If he wasn't such a bug on conservation I would have thought he was going out to do a little jacklighting. Then came the sounds! They sounded like the call of a soprano pig. The oddest thing of all is that those sounds came from the BOSS! Yes, right out of his mouth. Not only that but Bob, his old hunting buddy, listened with the practiced ear of a critic to a Bach fugue. I was sorry for them. We had had some good times together in the field . . . and then they both had to go at once. Well, perhaps humans weren't as strong as they looked.

When I discovered what they were up to, things looked blacker than ever. Those two guys were going to try to hunt TURKEYS. Turkeys, a bird that won't even hold to a dog . . . not even me. And of all things, the boss was trying to sound like a sexy hen to get them.

It seems that those two clowns were planning to go out and set the world on fire during Virginia's third spring turkey hunting season. I learned that I couldn't go along because dogs flush hens that would accidentally be shot. His long beard gives the gobbler away and only bearded gobblers may be taken.

The boss doesn't like to be heard discussing serious subjects with a dog, so most of the information I get is second hand. It seems that since wild turkeys are a natural "crop," it is only good conservation to harvest it. Wild gobblers have whole harems of hens, but the natural ratio of males to females is about equal. This causes an obvious problem. There are a lot more male birds than are needed. It is this surplus that must be thinned, or allowed to go to waste.

Enough of this scientist talk. I'm a hunter and although I can't go out and do it myself, I sure found out how it IS done. It isn't a bit like "buhd" hunting. (That's the way the boss says quail.) It takes stealth, knowledge, and most of all patience and practice.

To call up a wild turkey gobbler you must first *find* a wild turkey gobbler . . . or at least learn the whereabouts of one within a hundred yards or so . . . then call him with your hen call, sweet and coy. To learn to do this you need a good call and a record, a good teacher, or a cooperative girl turkey. The rest is patience, persistence, and old fashioned luck. If you move or call too frequently, you're lost. I suppose the wild turkey is the most suspicious bird alive. Unlike the boss, he won't come charging to just any siren song.

If all goes well, you'll come home with the trophy of all trophies. You will have outfoxed the old boy on his own terms, in his own territory. You have the right to be proud. Even if you did leave your loyal, trusting, hard-working dog at home.

VIRGINIA WILDLIFE

CONSERVATIONGRAM

Commission Activities and Late Wildlife News ... At A Glance

COORDINATED DEVELOPMENT TO BENEFIT OUTDOORSMEN. Governor Harrison's approval of \$10,000 to finance a joint camp ground development by the Parks Division of the Department of Conservation and Economic Development and the Game Commission on the Commission's Clinch Mountain Wildlife Management Area in southwest Virginia marks the beginning of a new era of inter-agency cooperation in the recreational development of lands on the state level. The camping development will be adjacent to the Commission's first pay-as-you-go trout stream scheduled to open this spring. Campers will also be able to take advantage of other hunting, fishing and outdoor recreation available on the area.

This type of voluntary cooperative development by separate game and park agencies to better serve the citizens of the state is probably one of the first such instances in the nation. In the past, the Parks Division has provided camping facilities on park lands, where hunting is not allowed, while the Game Commission has managed its lands and waters primarily to provide hunting and fishing. The joint development of state-owned lands for multiple recreational uses promises to broaden the appeal of these areas, thereby attracting more users and bringing important economic benefits to the state and many local communities.

The Clinch Mountain development will offer semi-primitive camping in keeping with the wilderness type of recreation offered on the area. The camping sites will be built and maintained by the State Division of Parks, although in the interests of economy, the construction work will be supervised by Game Commission personnel now overseeing other construction in progress on the area. The Game Commission's resident area manager will collect camping fees which will go to the Division of Parks for maintenance, and the special pay-as-you-go trout fishing fees from anglers participating in this type of fishing.

SIX NEW BOAT RAMPS FINISHED IN LAST HALF OF '63. Six new boat ramps have been constructed by the Commission of Game and Inland Fisheries during the last half of 1963, according to G. R. Holladay, Commission Engineer. Waterfence and Melrose landings on the Mattaponi are complete including concrete launching ramps.

Other recently completed access points include a concrete ramp at Lester Manor on the Pamunkey, a concrete ramp at Gwynn's Island on Chesapeake Bay, and creosoted timber ramps at Knott's Island in Back Bay and at Colonial Beach on the Potomac. A site at Westview on the James about 40 miles up river from Richmond and one at Scottsville are expected to be complete in time for the 1964 fishing season.

Negotiations have been completed with Virginia Electric and Power Company for four access sites on Gaston Reservoir and with Appalachian Power Company for eight access sites on Smith Mountain Reservoir. The Commission plans to devote quite a bit of its 1964 access development effort to establishing facilities at some of these sites on the new large hydroelectric reservoirs.

WESTERN DEER KILL RISES. This season's deer kill west of the Blue Ridge took a jump to 11,250 animals, much to the delight of Virginia sportsmen. The increase of over 1,000 was a welcome sign after the seven year low of 10,134 taken in this section last year. An even more significant sign was an apparent general increase in weight and condition of the animals indicating that, after several years of overpopulation, the herd may be reaching an equilibrium with available food.

Game biologists interpret this year's deer kill data as evidence that the either-sex shooting of the past several years has finally whittled the herd to the proper size and is paying off in healthier deer and better annual fawn production. Deer range in most western counties has been rapidly growing into mature timber during recent years, leaving less food each year for the big deer herds found in that area. The examination of deer at checking stations during the past five years has shown a shortage of fawns and evidence of poor general nutrition.

NEWCOMERS TO VIRGINIA

By HARRY L. GILLAM
Information Officer

Within the past few years the Virginia wildlife community has been graced with a number of emissaries from foreign soils and out-of-state waters. No comments on the foreigners have been heard from the native fauna, but the sportsmen of the Old Dominion are eyeing them with great enthusiasm.

The introduction of non-native species is not new. Exotic birds, animals and fishes have been released in great profusion in this country since colonial days. The failures have been legion and some of the successes such as the starling, the English sparrow and the carp have been just as disappointing. The most notable exception has been the ring-necked pheasant which was long ago successfully established in the western and northern portions of the country, but has repeatedly failed to "take" in the southland.

Out of these many years of confusion and failure came a scientific plan of attack. The U. S. Fish and Wildlife Service sent a team of specialists to foreign lands to study native game animals and relate their native requirements to climate, topography and land use conditions found in the United States. From this study came recommendations that certain species be tried in certain parts of the United States where they would have the best chance of success.

Fish species have likewise been introduced in waters that were first checked to make sure they met the newcomers' requirements for temperature, oxygen, chemical characteristics, food and cover.

Game Birds



Commission photo by Cutler

Sportsmen and Game Commissions alike have long had hopes of establishing the ringnecked pheasant in the South. Repeated attempts to establish these fine game birds failed miserably and even today only a handful of the thousands released on commercial shooting preserves are ever seen again. A strain of ringnecks which had adapted themselves to conditions in the Imperial Valley of California showed some promise in scattered parts of the South, but most of these populations were borderline cases barely hanging on from year to year.

When the U. S. Fish and Wildlife Service began investigating possible imports, several pheasants, partridges and related fowls were found in situations closely paralleling those found in many southern states. These birds were made available to the states for trial releases in the niches which most nearly approximated their native habitat. The habits of the birds were also carefully considered to avoid competition with native species.

HYBRID PHEASANTS

The first of these promising new game birds to reach Virginia were two subspecies of the ringneck. The Eastern Iranian Blackneck (*Phasianus colchicus persicus*) and the Western Iranian Blackneck (*Phasianus colchicus talischensis*). This shipment was small consisting of 15 cocks and 11 hens, and in order to utilize the birds to the fullest extent, the surplus cocks were mated with readily available Imperial ringneck hens.

Every one of the pure birds was saved for breeding stock so sufficient numbers could be produced for release. Since only one cock bird is required for each three to four hens,

a surplus of pure strain cocks rapidly built up and these birds were used for the production of hybrids. The hybrids were not used for breeding purposes, except for a few experimental backcrosses, so they were ready for release several years before the pure birds had multiplied to sufficient proportions to produce numbers of birds adequate for releases.

As often happens when two different plants or animals are mated, the resulting hybrids possessed some of the desirable characteristics of both parents. The pheasants were no exception, and some of the resulting crosses apparently had just the right combinations of qualities to thrive under conditions in Virginia. Although various combinations of crosses and backcrosses were released at many points in Piedmont and Tidewater Virginia, time has shown that the ringneck western-blackneck hybrids fare the best in Virginia. In light of this success, the release of eastern blacknecks and other types of crosses has been curtailed.

The first release site in the Sandy Point Area of Charles City County now boasts a high pheasant population and more recent releases in other parts of the state show equal promise.

GREEN PHEASANTS

The Japanese green pheasant (*Phasianus colchicus versicolor*), a native of the coastal portions of Japan, has been



Commission photo by Kesteloo

released at two points on Virginia's Eastern Shore. These birds seem adaptable to the low coastal areas which afford a decidedly different habitat situation than found farther inland, and the releases are showing promise. Two new areas, one in Lancaster and one in Northumberland county, were stocked during the 1962-63 season and these also show promise after one breeding season.

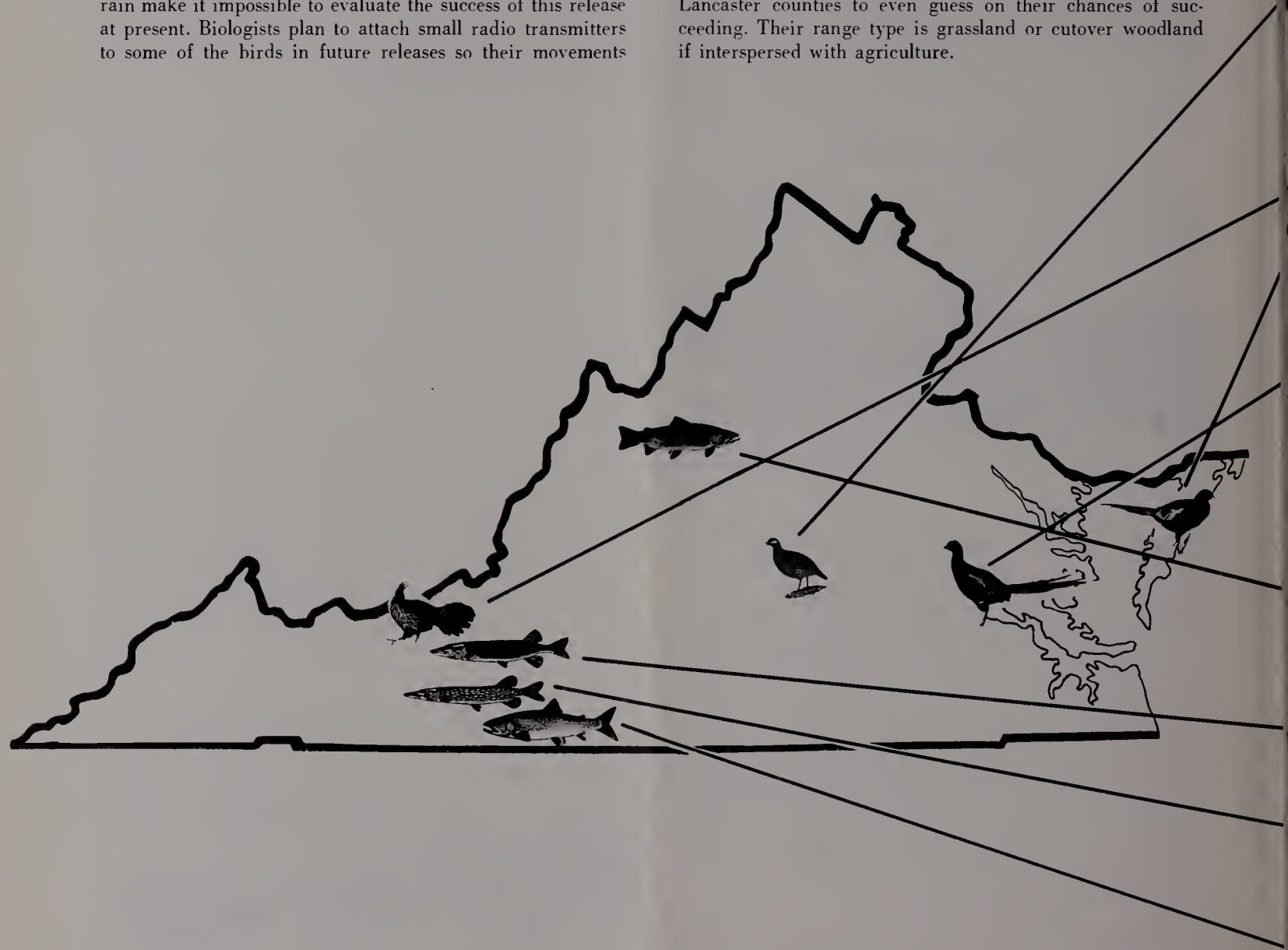
KALIJ PHEASANTS

The most strikingly different of all the pheasants being experimentally propagated for release in Virginia are the kalij pheasants (*Lophura leucomelana hamiltoni*), natives of the Himalayan foothills in India. The original stock of these birds was received in 1961 and the first release of 120 took place in April 1963. Since the birds are mountain fowl whose native range lies between 1,200 and 11,000 feet, they are only scheduled for release in the mountainous western portions of the state. The first release was made in the Dismal Management Unit on the Jefferson National Forest. The small number of birds involved and the rugged terrain make it impossible to evaluate the success of this release at present. Biologists plan to attach small radio transmitters to some of the birds in future releases so their movements








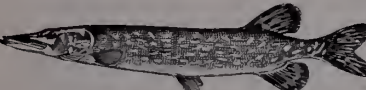


can be followed. Additional birds will be stocked in this area in the fall of 1963.

BLACK FRANCOLINS

The black francolin (*Francolinus asiaticus*), one of the Indian partridges resembling the chukar in general size and shape has been released in Cumberland and Lancaster counties and other releases in Piedmont Virginia are planned as the birds become available. Insufficient time has elapsed since the initial release of these birds in Cumberland and Lancaster counties to even guess on their chances of succeeding. Their range type is grassland or cutover woodland if interspersed with agriculture.



**EXOTIC SPECIES CURRENTLY USED
IN VIRGINIA'S GAME AND
FISH PROGRAMS**

	Black Francolin <i>Francolinus f. asiae</i>	Eastern Nepal and northern India.	Grassy, bushy or forest covered flat or hilly country if interspersed with cultivation.	Omnivorous. Seeds, grain, berries, other fruits, grasshoppers, ants and earthworms.	Weight 12-20 oz. Flies straight and fairly fast. Lays well to a dog, usually rising in ones or twos.
	Green Pheasant <i>Phasianus c. versicolor</i>	Coastal areas of Japan.	Wooded and agricultural lowlands along coast.	Seeds, fruits, grain, green foods, and insects.	Weight 1½-2½ lbs. Similar to ringneck except for coloration.
	Kalij Pheasant <i>Lophura leucomelana hamiltoni</i>	Himalayan foothills of India.	Wooded terrain from 1200'-11,000' elevation with minimum agricultural activity.	Seeds, berries, fruits, green food and insects.	Weight 1½-2½ lbs. Travel in small groups or singly; fly through thick cover like grouse.
	Iranian Black-necked Pheasant <i>Phasianus c. talischensis and persicus</i>	Wet to dry southern and southeastern coastal areas along the Caspian Sea and east through fairly dry, river valleys.	Semitropical to lower temperate zone vegetation; fields of rice, wheat, corn, cotton, tobacco and sugar cane; open to dense brush or woodlands.	Seeds, fruits, acorns, grain, green food and insects.	Weight 1½-2½ lbs. In habits resembles our ring-necked pheasant. Climatically suited to the southern states.
	Red Junglefowl <i>Gallus g. murghi</i>	Kashmir, Nepal and central India east through Burma.	Second-growth forests and brushy areas with or without an interspersed of cultivation or pasture.	Omnivorous. Grains, weed seeds, berries, buds, mast, roots, and green food. Also insects and worms.	Size of a bantam hen. Resembles a game fowl but does not hold its tail erect.
	Brown Trout <i>Salmo trutta</i>	Native to Europe, widely introduced throughout the world.	Cool well-aerated waters with maximum temp. below 65-70°.	Insects, crayfish, minnows & other small fishes.	To over 30 pounds—seldom over 3 pounds in Virginia waters.
	Muskellunge <i>Esox masquinongy</i>	Northern inland waters of the United States and Canada.	Larger cool water lakes with sufficient shallow water for spawning.	Other fishes, frogs, crayfish, water insects and occasionally small birds & animals.	To 67½ pounds and over 50" in length. Average 30-40 lbs. & 40-50" in length when mature.
	Northern Pike <i>Esox lucius</i>	Throughout most of the northern U. S. and Canada.	Natural lakes and sluggish rivers. Prefers weedy areas.	Fish, frogs, crayfish, insects and occasional birds.	Reaches a length of 3 to 4 feet and weight of over 30 pounds.
	Lake Trout <i>Salvelinus namaycush</i>	Large lakes of northern North America from New York to Alaska.	Deep cool waters of larger lakes.	Omnivorous: Fishes, insects, vegetable material.	To nearly 100 pounds—averages 9 pounds or less.
	Threadfin Shad <i>Dorosoma petenense</i>	Tennessee River System.	Large reservoirs in warmer climates—can't stand prolonged cold weather.	Plankton organisms.	Maximum size 6-7" and ¼ pound in weight; serve as food for larger game fish.

Fish

In addition to the redistribution of native Virginia fishes, a number of species not native to the state have been introduced to fill certain niches or to provide unusual angling. There is a constant search for species that will fill a vital function in Virginia's aquatic habitat or will provide more or better angling where native species fail to thrive. Preceding each trial introduction are months of checking and studying to make sure the water conditions are suitable for the new species. This usually requires at least 12 months to see if temperature and oxygen extremes remain within acceptable limits throughout the year.

The fish can be introduced as fry or as larger individuals better able to survive. Fry stocking is usually limited to new waters where competition and predation is at a minimum. Larger individuals are used when trying to establish new species in waters where large populations of native fish are already present.

MUSKELLUNGE

The muskellunge (*Esox masquinongy*), king of the pike family, has been introduced as fry in the new Gaston Reservoir and is planned for release in Smith Mountain Reservoir. A few larger specimens have been released in some of the states' smaller freshwater lakes.

The fry introductions are calculated to take advantage of the species' rapid growth and voracious appetite which should put the muskie in a good competitive position in



Commission photos by Kesteloo

these new waters. Their large size should allow them to feed on gizzard shad and other large forage fish found in these waters. Plans are being made for propagating them in the state's hatcheries for this purpose.

NORTHERN PIKE

The muskie's smaller cousin, the northern pike (*Esox lucius*) has also been introduced as fry into Gaston and Smith Mountain Reservoirs. These larger relatives of our native pickerel are expected to provide sportier angling and, due to their larger size, be able to feed on forage fish too

large to be utilized by bass or pickerel. Some of the state's smaller lakes seem to fulfill the northern's requirements and these fish may spawn here if they can be established.



BROWN TROUT

The Brown Trout (*Salmo trutta*) is being used more and more in Virginia's put and take trout program. Although native to Europe the brown trout has been successfully stocked in some waters of nearly every state in the nation and in many other parts of the world. Contrary to popular belief, the brown trout is no more tolerant of warm waters or pollution than his native cousins. He is perhaps better able to compete for food and can withstand heavier angling pressure than most other trout. They are being stocked in heavily fished streams in western Virginia to help provide trout fishing beyond the usual opening day haul.

LAKE TROUT

Lake Trout (*Salvelinus namaycush*), native to western and great lakes waters, are planned for introduction in Philpott Lake following good results with rainbows which have grown to large size in the lake's deeper waters. The lake trout is a deep water fish reaching tremendous size. It is felt these fish might do better than the rainbows as the deep waters and large forage fish are more suited to their requirements than to those of the rainbow.

THREADFIN SHAD

Threadfin Shad (*Dorosoma petenense*), natives of the Tennessee River system, are being introduced in many Virginia reservoirs as forage fish. These small shad, which are full grown at 6-7 inches, produce ideal food for freshwater game fish. The fact that they do not reach a size too large to be eaten keeps them from overrunning the lake. They do not stand up well under Virginia's rigorous winters so they must be restocked frequently. The adults are easily netted in large quantities and bring off a large spawn after their release in new waters. Artificial propagation of these fish has not been economically practical since they can be obtained easily below Tennessee dams.

THE OAKS

By A. B. MASSEY
Virginia Polytechnic Institute

THE oaks, potentially, are of major importance to some wildlife species. The white-tailed deer and other browsers feed on the young trees, low hanging limbs, and stump sprouts. Logging operations in oak forests are followed by the growth of sprouts from stumps, and thus increase the available browse which is freely taken by deer, elk, and to a limited extent by rabbits and some other animals.

Oak acorns are especially valuable wildlife food. They are rich in carbohydrates. Being available in the fall and early winter, they tend to fatten animals upon the advent of the winter season, which, of course, is very desirable. The shortage of nuts and acorns in the fall also has a retarding effect on reproduction the following spring. Due to shortage of nutritious foods squirrels may miss the spring brood. However, acorns cannot be relied upon as furnishing a staple fall food. The crop is very variable from year to year. One year there may be a heavy crop of acorns while the following year the crop is very light. There may be a good crop once in three or four years. Poor acorn production may be due to damage by acorn weevil, summer drought, or poor pollination in the spring when the trees are in bloom.

Oaks have pollen producing staminate (male) flowers and acorn producing pistillate (female) flowers separate but on the same tree. The staminate flowers are on the familiar oak tassels (catkins). The pollen is carried from the staminate flowers to the pistillate flowers by air currents. Rainy and foggy spring weather at the time of pollen dissemination interferes with the distribution of pollen, causing poor acorn formation. Also, unseasonably low spring temperatures may kill some of the flowers or the very young acorns. The abundance of acorns in the fall is a gamble.

There are two major groups of the oaks. The *white oak group* includes the white oak, post oak, chestnut oak and others. The *red oak group* includes the black oak, red oak, scarlet oak, willow oak, blackjack oak, and others. Species of the white oaks develop acorns in one season, whereas the red oaks require two seasons. Because of this, a good crop of white oak acorns may occur in a year of poor red oak mast production, and *vice versa*. This year's white oak acorn crop, for instance, may have been influenced largely by last spring's weather conditions, whereas the abundance or shortage of red oak acorns this fall may have been determined largely by conditions which existed spring or summer before last. Extreme acorn shortages thus can be averted somewhat by forestry practices that retain some large trees in both the white and red oak categories in all oak-hickory timber stands and cut-over areas. Five to ten such trees over ten inches in diameter, per acre, are recommended. As a complete mast failure results in undernourished forest game, overbrowsed range, and poor game reproduction the following spring, the retention and encouragement of mixed (red and white) oak stands is an important technique in forest-wildlife management. Since oaks do not produce acorns until they are about 20 years old, the clear cutting of a mature stand of oaks is a poor practice in areas where



White oak acorns grow on current year's twigs. (Right) The red oak group produce acorns on previous year's twigs.

game is recognized as an important secondary product of forest management.

Virginia is in the midst of the extensive region in eastern United States known as the Deciduous Forest. Our mountains and upper Piedmont forests are dominated by the oaks. The U. S. Forest Service lists 19 species, 2 varieties and 22 hybrid oaks in Virginia.

In many parts of the State, white oak (*Quercus alba*) is a common species. Large trees are prized for their aesthetic value in home grounds and groves as well as for the many uses of their wood.

Our forests commonly consist of a mixture of oaks and hickories with other miscellaneous trees and shrubs. Thus an oak-hickory forest or sizable wood lot is an excellent situation for squirrels, white-tailed deer and other forms of forest wildlife. Squirrels thrive on nuts and acorns. The wild turkey feed on acorns, especially the smaller kinds. The bobwhite quail take acorns, the shells of which have been broken by germination or opened by other animals and left. The Indians are said to have found white oak acorns palatable after being boiled. To man, the white oak is probably the most important species of the numerous kinds of oaks which occur in the State. Forest grown trees develop tall erect trunks yielding good saw logs. The lumber is highly rated for building construction, furniture, tight kegs, and barrels. Red oak lumber is extensively used for furniture and other purposes but is not as highly rated as is white oak lumber. Red oak bark is the better source of tannin.

White oaks thrive on well drained loamy soil. The pioneers discovered that the white oak grows on the best soil for cultivation; hence, white oak land became highly prized. On the other hand, a stand of post oak and blackjack oak, frequent in the Piedmont, indicated an infertile and sand clay soil difficult to manage.

The shrubby bear oak (*Quercus ilicifolia*) commonly develops dense stands on soil depleted by fire or sheet erosion and on infertile soil in open woods. The acorns are eaten by wildlife.

For ornamental planting the willow oak (*Quercus phellos*), water oak (*Quercus nigra*), scarlet oak (*Quercus coccinea*) and pin oak (*Quercus palustris*) are attractive. Leaves of the last two develop an attractive red color in the fall, while the leaves of most of the oaks become an unattractive brown in the fall.

Stump of a white oak on the V. P. I. campus that was 328 years old when cut in 1959.

VPI photo by Mosby



MID-WINTER MURDER

By EUGENE M. BEEMAN

IT came in as a routine dog-deer killing report, but as I started my investigation, back-tracking in the freshly fallen snow, I got the feeling that I was working on a murder case.

I am not easily moved by the sight of a dead animal or blood. Raised on a farm, I began helping with the family butchering chores at the age of eight. As a conservation officer, I am frequently required to dispose of ill or seriously wounded animals.

But the story written on the snow that morning last February would have shaken any man. I'm not a writer, but I'll try to repeat it on paper.

The scene of the killing was a partially open field, about 200 yards from the road. The new snow in about a 25-foot radius was stirred and trampled and blotched with red. Scattered about were patches of hair and chunks of flesh. Off to one side was the twisted body of a young doe deer, still warm. Both hind legs were broken, and the hind quarters mangled. I started to back-track.

Let me digress here to explain a few things which will allow the reader to understand the events leading up to the animal's death. At this time of year (February), our deer are forced to subsist on woody substances which have little fat-building ingredients. The body calls upon stored-up fat until this is exhausted, and then draws upon oils from the bone marrow. As its oil content is exhausted, the marrow, which originally appeared as a white, tough cord, takes on the consistency and appearance of raspberry gelatin. The bones become extremely brittle.

Often, after winter car-deer accidents, the driver of the vehicle is amazed by the number of broken bones the animal has received. Explaining why, I have slit the skin on the inside of the rear leg, just above the hock, and struck the bone with the back of my knife blade. The bone shatters like glass. The splinters can be easily pulverized on the road with my knife handle.

When a deer senses the presence of a dog, its instinct is to run to the nearest body of water, where it can defend itself. The size of the dog or dogs is not important. It is the dog scent which alerts and terrorizes the deer. With the lakes frozen, the deer must run until exhausted, or until it slips or catches a leg between two objects, breaking the brittle bone. Often, the strain on the opposite leg causes it to break also. If the snow is crusted, the deer's difficulties are compounded, since its sharp hooves and weight cause it to break through the crust, making flight difficult and increasing the chances of breaking a leg.

Dogs which run deer usually do so for one reason only—sport; sport which consists of running the deer to a helpless state, then rushing in and out, biting at the animal's rear parts and tearing away flesh. Very seldom is the meat eaten.



It happens here too! A Virginia game warden examines a deer pulled down by dogs in our own state.

Although this is the sickening tale of ravages committed by free running dogs in another state, it is reprinted here from *Connecticut Wildlife Conservation* by courtesy of the Connecticut Board of Fisheries and Game because the same things do happen to our own wildlife when dogs are allowed to roam the woods. Dogs should be kept under control at all times, and never be permitted to hunt on their own.

Deer killed in this manner die from the shock which follows terror and pain. The spine-chilling screams which precede death sound almost human.

Back to my story on the snow. Following back the trail left by the doe and two dogs was very simple. Both hind legs dragging, the deer had arrived at her death scene after having been downed in three previous areas of struggle, similar to the one described. At the first of these, I found where the second leg had been snapped, wedged between two rocks hidden under the snow.

Now it was a three-legged deer trail, along with the dog tracks, which I followed back. After about a half-mile, I reached the spot where the first hind leg had been broken by the animal's leap from a three-foot ledge.

You, of course, wonder how such a slight drop could cause injury to the sure-footed deer, even if the bones were quite brittle.

The answer is that the flight of a deer being pursued by a dog or dogs in no way resembles the graceful, bounding, flag-up escape of a startled animal which you have come upon in the woods. Rather, it is blind, frantic running, tail tucked between the legs. It is the dash of a creature terrified, and with good cause.

I continued to back-track, but the wind came up and the snow drifted into the tracks, wiping them out in places. It became apparent that I'd not be able to locate where the dogs came from, so I cut back to the road and headed for my car.

Shortly, I spotted two small, mongrel dogs coming up the road toward me. They left the road as I approached. I have little doubt that they were the attackers.

During my 11 years as a conservation officer, I have, along with my fellow officers, picked up and disposed of several tons of venison ruined by dogs . . . only a small fraction of the actual kill, since the only deer we find are those spotted from the roads, or by hunters, or those which we happen upon in the woods. How many remain hidden until totally consumed by other wild creatures cannot be known, but it must be a great number. Also, it is known that a large percentage of car-deer kills, . . . result from pursuit by dogs.

I am not a dog-hater. On the contrary, I now own a ten-year-old collie which we raised, and have always owned one or more dogs. These animals have had a purpose—either that of companions for my children and myself, or as hunting dogs. They have, therefore, been of value to me and worth worrying about. Many dog owners seem as much concerned about their dogs as their children.

But some people apparently keep dogs just for the sake of owning one, and don't much care what the animals do or where they roam. It is these thoughtless owners who are actually the cause of helpless deer being terrorized and killed.

Wildlife in Virginia's Economy Today

By J. E. THORNTON
Supervising Game Biologist

THERE would be ample reason for maintaining and developing wildlife resources if they served no more utilitarian purpose than that of simply making the world a more beautiful and inspiring place in which to live. It is well worth remembering, however, in these days of emphasis on economic development, that the wildlife of Virginia does support a large and growing segment of the economy; and it is worth-while appraising wildlife's present and potential values in economic terms, even though it may be as difficult to assign a true dollar value to wildlife as to a sunset, a rainbow, a shower of rain, or a baby.

The wildlife of the Commonwealth of Virginia is one of those "renewable" resources which our forefathers found in such abundance in the new world when they landed on the shores at Jamestown. To them, this resource was of tremendous value as a source of food and helped pull them through the first few difficult years of life on the new continent. These early settlers in many cases depended almost entirely upon wildlife as a means of existence, and the bounteous wildlife populations found in Virginia and throughout North America in these early years made possible the founding of many remote settlements which later grew into the modern cities of today.

The creation of many of the great fortunes in the new world was made possible by the exploitation of the abundant fur resource found throughout most of the eastern and northern part of North America. Even in comparatively recent times in Virginia, backwoods settlers were dependent to a large degree upon this resource as a source of food, and in some instances money, as "market hunting" existed in one form or another until the turn of the century. "Old timers" still living recall having seen or have heard others tell of having seen wagonloads of deer, wild turkey, and grouse passing through small towns on the way to northern markets.

Now all this has changed, and this rich wildlife resource which our ancestors found here plays a different role in the economic welfare of the community. It is no longer, for example, a matter of an empty stomach if no game or fish is brought in by the hunter home from the hills. Few are dependent directly on it to keep body and soul together, although its value as food is still considerable. The fact that a delectable brook trout or a plump quail was taken on an enjoyable outing certainly does not detract from its value as food.

The principal value of this wildlife resource to the modern day Virginian stems from the recreation it provides during leisure hours. This recreation may take the form of hunting, fishing, photographing wildlife in its natural habitat or just observing it while driving or walking through the fields or forest. The difficult part is to put a dollar and cents value on this product called recreation. It may seem unnecessary to place a monetary value on this phase of the resource; but the fact remains that unless its value can be re-

duced to dollars and cents, it is difficult for those not so interested in wildlife either as hunters, fishermen, naturalists, or for some other reason, to evaluate its relative importance in the economy of the state and nation. We cannot measure the value directly, as with other products from the land or from industry or in "catch" from commercial fishing; but we can measure value indirectly, from the "fee" willingly paid for hunting or fishing or other use of this resource. This "fee" must, of necessity, include food, shelter, transportation, tackle, arms, ammunition, and other miscellaneous goods and services.

Since one of our primary interests is in recreational hunting and fishing, it is well to have some idea of how many people are involved in the use of the resource for this purpose. A survey conducted in 1960 by the U. S. Fish and Wildlife Service found that over 30 million people in the United States or 23 per cent of the population over twelve years old went hunting, fishing, or both. These participants in the sports of hunting and fishing spent around 650 million man-days per year in hunting and fishing and close to four billion dollars on these pastimes.

In Virginia, over 550,000 people buy licenses to hunt and/or fish and this number is going up each year. This does not include those fishermen under 16 years old or over 70 who are not required to purchase a license, nor does it include those individuals who hunt and fish exclusively on their own property. It has been estimated that approximately \$100,000,000 is spent each year in the pursuit of these sports in this state. These figures include the money spent on all the activities related to hunting and fishing, such as firearms and ammunition, fishing tackle, transportation, food, lodging, clothing, and other miscellaneous items and services connected with the sport. For many years, hunting and fishing have been considered the fourth largest industry in those counties west of the Blue Ridge Mountains. Hunting and fishing is big business to somebody besides the man who does it!

On a local level, the money spent in the sports of hunting and fishing is of considerable importance to the economy, to the filling stations, sporting goods stores, tourist courts and hotels, restaurants, farmers, and landowners. In "deer country" the interest is so great that some counties west of the Blue Ridge close their public schools during the week of deer season. In many of the rural counties throughout Virginia, a large portion of the year's business in many of the stores, service stations, and motels is conducted during the early part of the deer season and the first few weeks of the trout season. For example, there is hardly a home in the western part of Augusta, Bath, or Highland counties or other important "deer hunting" counties that does not entertain hunters during the deer season. Many of the hunters are paying guests from out of the state. Many return year after year to the same farm to hunt, and to renew acquaintances. Some have been visiting the same farm family for as many as 25 years. Lasting friendships have grown from these relationships, to the mutual benefit of both farmer and hunter. Signs throughout the "deer country" just prior to and during the deer season offering "room and board" to visiting hunters testify to the economic importance of hunting to local people. Money brought into small communities by the sportsmen is a welcome addition to the local economy. (Over)



Fortunes have been made in furs, but it is the demand for recreational hunting and fishing that gives wildlife its big dollar value today.

Commission photo by Kerrick

(Continued from previous page)

While there have been no detailed studies on the overall importance of this resource to the economy of Virginia, several other states have conducted studies which shed some light on this subject. For example, a recent study in Pennsylvania found that hunters spent \$1,014,244 in one county during the deer season, or "deposited" \$181 in the county for each legal deer killed in that county. In the same county it was found that 28 per cent of the rural families boarded hunters during the deer season. In Kentucky, it was estimated that the "total expenditure potential" of a deer herd in one of the rural counties was \$804,000. It was pointed out that any county in Kentucky would welcome an industry with over three-fourths of a million dollar annual payroll, yet most of them failed to capitalize on this resource. A study in Texas found that on one management area deer produced an estimated return per animal of \$40.96, compared with an average return of \$28.82 from livestock in the same general area. Landowners in this same state last year received \$12,000,000 for the sale of hunting rights on their lands. A survey conducted in Utah found that hunters and fishermen in that state spent over 44 million dollars in 1955, which was greater than the value of all the cattle produced in that state for that year. The same survey indicated that there were few businessmen in the state of Utah that did not share in some part of the sportsman's dollar. A similar survey conducted in New Mexico found the total expenditure for hunting and fishing in the state was 32 million dollars, which was greater than the receipts for all dairy products and sheep products combined. In Arizona the expenditures for hunting and fishing exceeded by four million dollars the combined value of all the hay, sheep, wool, citrus fruit, eggs, poultry, seed crops, grapes, and wheat. In the United States much waterfowl hunting is worth from \$10 to as much as \$100 per acre per year to the owners of good marshland. Forest land is worth from ten cents to \$1.00 per acre for the hunting or fishing it provides.

Actual figures as to the real dollar and cents value of the wildlife resource to Virginians are hard to come by. We do know of several large industrial forest owners in eastern Virginia that are charging as much as \$.40 per acre per year for the hunting rights. On one of the large tracts of land recently purchased by the Game Commission for public hunting and fishing, appraisers gave a value of \$2.00 per acre for the wildlife on the area. One commercial fishing pond in Montgomery County returned as much as fifteen per cent on the investment and did so after the first year of operation. In the last few years, some of the larger farmers in the piedmont section of Virginia have been charging a daily fee of as much as \$3.00 for a half day of dove hunting on their property, thus capitalizing directly on a resource which previously had been considered of little

value. Paid dove hunting has become well established in several southern states and undoubtedly will become more popular in Virginia. In deer country, both east and west of the Blue Ridge Mountains, the leasing of the hunting rights to individuals or clubs is becoming commonplace. Some landowners in Shenandoah County have leased the hunting rights to their property for as much as \$500 a year, in some cases providing room and board for an additional charge. As the population pressures continue to grow, the revenue from the sale of hunting and fishing privileges and the goods and services that accompany them may easily become a major source of income to the landowner rather than a supplemental source.

To those who are not hunters or fishermen, a trip to the deer hunting sections of Virginia just prior to the opening of the season or to the trout streams during the first few days of the season would be a real education on the "economic" importance of the game and fish of the area. Every store is crowded, every service station is busy pumping gas and many a farmhouse is filled to overflowing with guests. The value of the deer herd in Shenandoah County was recently brought into sharp focus when the deer kill dropped drastically in 1962. Truck drivers servicing that county with some of the consumable commodities complained bitterly when their sales dropped to less than half what they had been as hunters failed to return to the county and looked for greener pastures elsewhere.

Hunting and fishing is *BIG* business in Virginia, and is likely to get bigger. With increased leisure time for the average American pointing up the importance of recreation, all kinds of possibilities are beginning to open up for the rural communities in Virginia. Farmers and landowners who are willing to manage and care for the wildlife resource will reap a harvest never dreamed of in past generations. It could easily be that farmers will begin to worry more about their game than their beef cattle. Sport fishing and hunting are almost surely to become even more significant ingredients in the growth of our economy than they have been in the past. In looking to the future, landowners and long-range planners for Virginia's economy can give serious consideration to this important "industry."

The Lake Cooperation Built (Continued from page 9)

proximity to a "fishing public" and ease of access to the contemplated impoundment site.

The Fairfax County Park Authority has acquired a 375-acre tract adjoining Burke Lake to provide facilities for overnight camping and picnicking. Boats are available for rent at the lake concession, and during the past year boat rentals have numbered 7,333. Mr. Richard Keplinger, resident park manager, states that there has been a total attendance of 109,181 including shore fishermen, campers and picnickers using the area. Burke Lake is significant in that it typifies a kind of recreational development of which Virginians will see more in the near future—as, for example, the planned development by the State Division of Parks of public camping facilities on Game Commission owned Clinch Mountain Wildlife Management Area.

AND—it has all been done through *cooperation* to bring about, quoting Aldo Leopold, "... a state of harmony between *men* and land."

The Case for the Handgun

(Continued from page 8)

study of handgun hunting with the Commission of Game and Inland Fisheries. The combined groups have had three studios and constructive meetings, interspersed by technical studies of available equipment, legal enforcement questions, safety, and experience of other states who permit handgun hunting.

The results of these studies and discussions established a favorable basis for the adoption of permissive legislation to be introduced to the 1964 Session of the General Assembly by the Honorable George M. Cochran, representing a very large group of interested and active sportsmen in western Virginia.

The proposal is simple in concept, but gives maximum assurance of safety, humane killing of game, enforceability, game conservation, and challenge to the skills of the many able handgun shooters of Virginia.

The Game Commission was properly concerned that pistol hunting would invite irresponsible people to shoot up the wood with inadequate, junky handguns, improperly disturbing game and other hunters. To avoid this, it is proposed that a minimum of 350 foot pounds of energy (as shown in Manufacturer's Table) and a minimum of .23 caliber be required for handgun cartridges used for game. This will eliminate the inadequate American guns and the inferior foreign imports. Intentionally the nine millimeter cartridge, which is the standard military sidearm cartridge for most European countries, would be eliminated by this specification—largely because of the unreliability of many of the foreign pistols imported for its use. Likewise, such American calibers as the .380, the .38 short and the .32 and .25 calibers would be eliminated. While some of these were produced in fine weapons, they were not developed for target or hunting accuracy and power; and the ammunition being of low power, many very inferior guns also were made to handle the cartridges.

The minimum caliber permitted for game would be the .38 special which, with 150 grain bullet at 1065 feet per second, produces 377 foot pounds of energy. Since this is the favorite center fire competitive match caliber and is also the most popular caliber with law enforcement officers, it would generally be used by experienced and competent shooters who will respect both its virtues and its limitations.

It is improbable that "quick draw" or bang-around handguns will be developed for cartridges having 350 foot pounds energy because most of these cartridges cost between 10¢ and 15¢ each and will not appeal to the shooter who just wants to burn powder. The fact that they can be reloaded by hand at less cost should not be of concern because the individual sufficiently interested in firearms to load his own cartridges is probably pretty expert and reliable in handling them.

Handgun hunters should have no special season, but should hunt under the same restrictions and conditions as apply to rifles and with the additional limits of energy and caliber minimums covered in the foregoing when used for game. These energy and caliber limitations need not apply to varmint shooting for which various .22 cartridges are popular, accurate and adequate.

There are now 35 states that permit hunting game with handguns, and several others permit their use on varmints.

Results appear to be uniformly favorable and two more states have studied the situation and joined the ranks within the past year.

Reports from law enforcement officers, hunters and Game Commission field service representatives of long experience in states permitting handgun hunting, all indicate freedom of accidents and enforcement problems, a distinct conservation of game and increased recreation when handguns are used for hunting. They also report that the handgun hunters are the most experienced and reliable of all hunters. A man who is not a first-class pistol shot is unlikely to lay aside his rifle or shotgun and go afield with a handgun.

Virginia already has good laws pertaining to handguns, including the one requiring that a weapon be carried unconcealed. With this limitation, there is no more temptation to take game illegally than with a carbine.

Guns similar to those pictured are made by Smith and Wesson, Colt, Ruger, Hi-Standard and a few others. Ruger also makes a single shot .256 caliber pistol in a revolver type frame. It is both powerful and accurate.

These are representative of the heavy, powerful and superbly accurate handguns which were unheard of a few years ago. With them a whole new sport in shooting and hunting is now ours to enjoy.

The availability of the new types of handguns has brought about a radical change in the normal style of shooting. Whereas most handgun shooting has been done for years holding the weapon at arm's length in one hand, the long shots are now being made with far more support being provided for the gun. This is particularly necessary when using a telescope sight which magnifies any tremble.

One of the simplest auxiliary supports is to grasp a tree, fence post or other solid object with one hand while resting the gun over that wrist or forearm. Another position is to face the target squarely, grasping the gun butt with one hand and wrapping the fingers of the other hand around the knuckles of the first one. Thus, the arms and shoulders form a triangle which is very good for horizontal steadying though less effective vertically. Vertical stability can then be improved by sitting down and resting the forearms over the knees. The sitting position has long been a favorite of rifle shooters since it provides a far steadier three-point support from the ground as compared to standing upright. This position partially camouflages or perhaps conceals the shooter while permitting him to see over grass or low bushes and, all things considered, is probably the most useful long-range pistol shooting position yet developed.

Further refinements can be made by the use of a neck lanyard attached to the gun or by using special grips best adapted to a two-hand hold.

An excellent, illustrated article by Claude Ormond, entitled "Hunting With a Handgun," appeared in a recent issue of *THE AMERICAN RIFLEMAN*; and there have been many other articles in *GUNS AND AMMO* and other magazines on this increasingly popular sport.

With a whole new sport developing out of the availability of fine quality new equipment, it is important that Virginia hunters be privileged to enjoy this sport as may the residents of most of our other states. This is particularly desirable since the ratio of hours of recreation to amount of game killed can be greatly improved at this time when such measures are becoming more necessary every year.

ARLINGTONIANS VOTE 2-1 FOR TREATMENT EXPANSION

The voters of Arlington, Virginia, blew a refreshing breath of public consciousness across the Potomac when they voted a \$5.56 million bond issue to improve the county sewage plant to secondary treatment.

The issue was settled by nearly two-to-one in the recent referendum election.

Scarcely able to contain their pleasure, county officials promptly turned the job of preparing plans and specifications for the new works over to consulting engineers. One official described the voting booth result as "amazing." He pointed out that no "sales pitch" was made to the public: the County Board simply sent out a brochure to residents explaining the benefits of the proposed improvements in terms of bettering the Potomac at and below Washington.

The additions and refinements to the present primary plant on Four Mile Run will provide from 90-95 per cent removal of oxygen-demanding organic material from the wastes. The new facilities will operate on the step-aeration-activated sludge method. Plant capacity will be about 24 million gallons of wastes daily from a population of 220,000. It is expected to be sufficient to 1980, at which time plans call for installing another treatment tank to increase the capacity to 30 MGD serving 260,000 people.

When completed, the Arlington plant will be giving the highest degree of treatment of any major community in the Potomac Basin.

The Interstate Commission on the Potomac River Basin has announced renewed efforts to bring about construction of new or improved waste treatment facilities among at least 10 seweried communities along North Branch Potomac and its tributaries, and has urged the state water control agencies of Maryland and West Virginia "to exert whatever resources are available" to reduce the undesirable conditions caused by the absence or inadequacy of treatment facilities among these communities.



USD1 Fish and Wildlife Service photo

A GRAND OLD NAME

The guns of the Civil War had barely been silenced when the two-masted schooner *Virginia* began her career on the Fish River in Alabama. Her keel and ribs were of black walnut, her planking black cypress two inches thick. Now, 98 years later, the *Virginia* still bucks the winds and plows the waves of the Gulf of Mexico, not as the luxury class pleasure boat she once was, but as the oldest known vessel in the American commercial fishing fleet. She is said to be "strong as the Rock of Gibraltar," and her present owner predicts she will be seaworthy and active a century hence.

For three quarters of a century *Virginia* traveled under sail. Then her masts were removed, and a superstructure and engine installed.

Today she can carry 20,000 pounds of iced fish, although she usually lands about 5,000 pounds of snapper and grouper at Florida ports. She makes about 20 fishing trips a year, but can stay at sea 30 days with a crew of two to four.

This matriarch of the fleet began her commercial fishing career late in life, in 1946, after five years' service as a charter boat for sport fishermen. The "discovery" that she is, in fact, the oldest active commercial fishing vessel resulted from a recent fleet-age study made by the Bureau of Commercial Fisheries, U. S. Fish and Wildlife Service.



"Painting China Is My Hobby"

"Ever since I first saw the VIRGINIA WILDLIFE magazine I have thought it a most interesting and informative periodical," says Mrs. O. R. Lindstrom of New Market. "As you will see by the enclosed pictures, I really enjoy the beautiful covers too."

Mrs. Lindstrom's hobby is painting china. After finishing the plates shown here, she planned next to do a bluegill from the June 1963 VIRGINIA WILDLIFE cover, and then a blue jay from the November 1962 issue.





*Bird
of the
Month:*

Blue-Winged Teal

By DR. J. J. MURRAY
Lexington

THE little blue-winged teal is one of the most common, most widely distributed, and best known ducks in our state. While I do not have specific records from every county, there is almost certainly not a county in the state where it does not occur. It nests sparingly on the Eastern Shore, at Cape Henry, in Surry County, at Hog Island State Game Refuge, and possibly in the Alexandria area. Elsewhere in Virginia it is a common fall and spring migrant, and in some places a rare winter visitor.

It is one of our smallest ducks, only 16 inches from tip of bill to end of tail, trim and most attractive. Not as brilliant in coloring as some of the ducks, it is nevertheless beautifully marked. The male's head is a dusky gray, with black around the base of the bill and a white crescent in front of the eye. The back is dark brown and the underparts a brighter brown, with small black spots. A large area in the fore part of the wing is blue, and the speculum, which is a bright patch on the middle feathers of a duck's wing, a shiny green. As is so often the case with birds, the female is much duller, the feathers of her back dusky, with buff edgings, and the breast and sides grayish and spotted.

This is one of the species known as "dabbling" ducks, because they feed in shallow water, tipping the head straight down under water, with the tail and lower part of the body sticking out. About three-fourths of its food consists of vegetable matter growing in the water. Sometimes they light in plowed ground or in fields where they can eat grass. It

also eats insects and, where they are available, shrimp and sand fleas.

Most writers refer to the blue-winged teal as a silent bird. Dr. Chapman quotes another writer to the effect that it is seldom heard. That has not been my experience at all in the Valley of Virginia. I frequently hear the *peep, peep* whistle of the male, somewhat less frequently the *ook, ook* call of the female, and rather rarely a *quack, quack, quack* from the female.

Like the green-winged teal, this bird is a swift flyer. It rises quickly from the water when it is frightened, but is not at all shy. I have often walked up fairly close to a group of them at one of our ponds without flushing them, or only to have them fly up and pitch again not far away.

As with most ducks, the young are lovely little things, covered with soft light-gray down. Dr. John Grey and a companion found a pair at Seashore State Park with young not able to fly; and he and I once saw three immature birds at Lynnhaven Inlet.

Two slightly different races of this duck occur in Virginia. Most of our winter birds belong to the widely scattered form that has an extensive breeding and wintering range. Our relatively few nesting birds probably all belong to the Atlantic race recently described, called the Atlantic blue-winged teal, which breeds in a limited area in tidal marshes on the Atlantic coast from New Brunswick, Canada, to Pea Island, North Carolina.



Edited by HARRY GILLAM

Nice Fauquier Buck



This nice eight-point buck was downed by Earl Lynskey of Bealeton, Virginia, in Fauquier County.

Salt Water Citation Minimums Upped for 1964

It will take a 9-pound bluefish to earn a Citation in the 1964 Virginia Salt Water Fishing Tournament. The minimum Citation weight requirement for three other species will also be raised—black drum to 55 pounds; croaker to 3 pounds and spot to 14 ounces.

The increase in the Citation minimums was brought about by the terrific number of Citations awarded to anglers this year as compared to each of the Tournament's five previous years. There were 3140 Citation winning catches registered in the Tournament this season. This represents an increase of 1000 over the 2100 awarded in 1962, the highest of any previous year. Of the 3140 entries in the 1963 contest over half were awarded to bluefish. Of these 1076 weighed 8 pounds or better.

The Virginia Tournament is sponsored by the Department of Conservation and Economic Development.

Wheelchair No Handicap To Outdoor Fun



Confined to a wheelchair since a 1960 accident, Troy Epley still enjoys his hunting and fishing. The Kenbridge, Virginia, resident is shown here with a 4-pound 2½-ounce Citation pickerel and a 134-pound buck taken at Camp Pickett. He is taking up watchmaking as a profession.

Some Shot



Martinsville Bulletin photo

Doug Hopkins, center, proudly holds his 11-point buck which he bagged near Goose Point on Philpott Reservoir. With Hopkins are Johnson Spencer, left, and J. B. Spencer, all of Route 2, Bassett. Hopkins said he shot the buck, which weighs 200 pounds, three times before he stopped it. Then the three-some dragged it two miles before Henry County Game Warden Edgar Lemons spotted them and checked it.

Why Farmers Post Their Lands

In Center County, Pennsylvania, 90 landowners were asked by Pennsylvania Cooperative Wildlife Research Unit personnel why they did or did not post their lands against hunting. Of the 26 owners who had posted, 46 per cent listed unsportsmanlike conduct as the main reason. To protect family and property, exercise personal rights, preserve game and personal hunting, avoid liability, keep out strangers, and control hunter numbers were other reasons given. Of the 64 owners who had not posted their land, 28 per cent thought neighborliness

too important. Other reasons given were: no need to post, posting did no good, too many deer and rabbits, not right, feared public opinion, were Game Commission program participants, or had no reason.

Audubon Society to Continue Eagle Study

The bald eagle nesting survey for the Chesapeake Bay area conducted by the National Audubon Society will probably be continued for at least three more years in order to obtain reliable data, according to Jackson M. Abbott, regional coordinator for the study. The intensive 1963 investigation indicated that only three eaglets were raised from 29 nests under observation in the Chesapeake Bay region. This was even worse than in 1962, the first year of the study, when six eaglets were raised from 36 known nests.

The annual mid-winter population count was carried out from January 10-26. Although the results of this survey have not yet been compiled, last year's count showed only 130 of the big birds in the three-state area. Virginia was credited with 68 eagles in the 1963 tally.

Gathright Smallmouth



This nice smallmouth was taken by Richard Showalter of McLean, Virginia, while fishing for trout on the Commission-owned Gathright Wildlife Management Area in Bath County. This three-pound four-ounce bass is one of the largest fish ever taken from this area.



Edited by DOROTHY ALLEN

Virginia 4-H'er Scales To Top Forestry Award!



AFPI photo

Wayne Palmer, Route 1, Nathalie (left), received a \$400 scholarship award for his outstanding forestry project which was judged one of the six best in the nation at the 42nd National 4-H Club Congress in Chicago. Here Wayne scales a hardwood log with Stanley M. Jepsen (right), American Forest Products Industries, Inc., of Washington, D. C., donor representative. Over 81,000 boys and girls competed in forestry projects for the all-expense-paid trips and scholarships which have been sponsored for the last 16 years by AFPI-The Educational Arm of the Nation's Forest Industries. The forestry program is supervised by the Co-operative Extension Service and arranged by the National 4-H Service Committee.

Successful "Robin Hood"



Bassett Journal photo



Photo by Karl Maslowski

Many valentines are decorated with cooing doves, and for good reason. The dove has become the emblem of peace and love, probably because of the devotion of a mated pair to each other and to their young, the familiar strutting, billing and cooing of the male during courtship, and their gentle timid nature. Doves were used by the early Greeks and Romans, and in the first Crusade, to carry messages—just as carrier or "homing" pigeons were used in our two world wars.

Mrs. Dove seems to do most of the talking around the household. Missouri Cooperative Wildlife Research Unit has discovered that when the female dove is away from the nest, her spouse coos plaintively and persistently for her return. As soon as she gets home, however, he keeps his beak shut around the house.

The devotion of doves to their mates and to their young is great and has been sung by the poets and praised by the philosophers during many ages.

Pictured left:

A 13-year-old Danville youth shot and killed this nine-point buck in Patrick County on Thursday, October 17, with a bow and arrow. The weight of the deer was estimated at about 200 pounds. The youth, Terry Daniels, is shown here with the arrow that bagged his prize catch. With him is his father, Doug Daniels, of 801 Foster Road, Danville. Donald Gray, also shot the deer. But it was the shot from young Daniels' bow that killed the animal. Game Warden Edgar Lemons said it was the largest buck he had seen killed with a bow and arrow in this area. The trio was hunting near Union Church, near Fairystone Park.

Rifle Safety Training



Highland Recorder photo, Monterey

Rifle safety training, sponsored by the Virginia Game Commission, the National Rifle Association and locally by Highland County Boy Scout Troop 88, attracted about 20 boys of varying ages when a session was held at the airfield near Monterey. The instructor for the course was Game Warden A. R. Miller. He was assisted by Scoutmaster James Thompson, W. R. Stephenson, Jr., Richard Crummett and A. M. Lotts. Besides safety, the boys were shown good shooting positions and proper handling of firearms.

Third Try—5½ Pounder



Petersburg Progress Index photo by Fulp
Dinwiddie student Cameron Walker, Jr., is a three-time winner. Cameron has pulled in three bass (pictured is the largest) from a Dinwiddie County private pond. His first weighed 3¾ pounds, the next 4¾ pounds, and his last catch tipped 5½ pounds. Nine-year-old Cameron is the son of Mr. and Mrs. Cameron Walker of Dinwiddie. He says he used a pole and minnow as a lure.



Edited by JIM KERRICK

Opinions and Rulings

METAL OR PLASTIC FACSIMILE OF THE CERTIFICATE OF NUMBER:

The use of a facsimile of the certificate of number is not permitted under the Federal Boating Act. "The certificate of number shall be pocket size and shall be required to be at all times available for inspection on the vessel for which issued." A facsimile, being a copy, would not be the certificate. There can be only one certificate issued for each set of numbers and it must be on board when the vessel is in use.

LIFESAVING DEVICES FOR WATER SKIERS:

In answer to a recent question as to whether the Coast Guard requires water skiers to wear lifesaving devices, the Coast Guard advised that it does not require such devices to be worn. An approved device, however, must be available (in the boat) for each skier.

The Code of Virginia requires that, "No person shall operate a vessel on any waters of this State for towing a person or persons on water skis, or surfboard, or similar device unless there is in such vessel a person, in addition to the operator, in a position to observe the progress of the person or persons being towed or unless the skier or skiers wear life preservers." In other words, a water skier must wear his life preserver if there is only one person aboard the towing vessel. When the towing vessel operator is accompanied by an observer, the skier's life preserver may be carried in the vessel.

SAFE LOADING:

Although the boating accidents for the year ending December 31, 1962, show a decrease of 143 accidents and 104 fatalities over the previous year, the stability type accidents, including capsizeings, show a 9 per cent increase.

In addition, falling overboard, sinking, and improper loading or overloading, which involve stability, were once

again high in the number of fatalities. If we combine the above four categories, we find that they accounted for 841 of the 1,055 fatalities, or almost 80 per cent, in 1962.

THE COAST GUARD AUXILIARY:

The United States Coast Guard Auxiliary is prohibited from awarding a decal to boats carrying passengers for hire.

You Can Do It

Over the years we have carried articles on water safety in VIRGINIA WILDLIFE, and here is your opportunity to express your thoughts and ideas on how our great field of recreational boating can be made safer.

Sit down and write an article of 300 words or less on boating safety.

For each article that is published a three-year subscription to VIRGINIA WILDLIFE will be given.

Send all articles to the Safety Officer, Virginia Commission of Game and Inland Fisheries, P. O. Box 1642, Richmond, Virginia 23213.

Unused articles will be returned only if accompanied by a self-addressed, stamped envelope.

Boating Insights

Some valuable tips for pleasure boat owners are available free of charge in a new publication, called *Boating Insights*, published by the Outboard Boating Club of America. Consisting of a series of reprints from *Outboard Boating* magazine, the new booklet tells small boat skippers how to install a compass, check speedometer accuracy, calculate the amount of flotation needed for a particular craft, and the do's and don'ts of portable and permanent fuel tanks.

Also covered in the new publication are boat trailer capacity and operation, compartment ventilation, and the systems of lights required for various classes of small craft on different waters. Including diagrams and illustration, the

booklet is aimed at improving the know-how of the average boatman.

A copy of *Boating Insights* may be obtained free by writing to the Boating Services and Education Department, Outboard Boating Club of America, Chicago, Illinois.

—OBC Legislative Ledger,
October 16, 1963

Boat Capacity

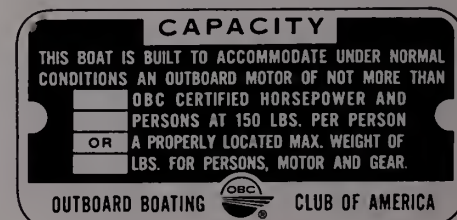
How many small boat skippers are carrying excess weight around? The Outboard Boating Club of America says that boatmen are a pretty active bunch, so it's doubtful that there are many modern mariners carrying excess poundage around the middle. And most small boat skippers are aware of the fact that they should check the weight capacity of their craft before starting out on a pleasure voyage.

However, OBC has this reminder for boatmen: the weight capacity recommended by the boat's manufacturer—usually found on a small plate near the transom—gives the total weight capacity of the craft. To determine how much weight in passengers and gear a boat can handle, follow this simple procedure:

1. Add up the weight of your outboard motor (check the manufacturer's specifications), battery, fuel (gasoline weighs six pounds a gallon), and normal operating gear, such as anchor, oars, radio, fire extinguisher and the like.

2. Subtract this total from the manufacturer's recommended weight capacity.

3. Never exceed the resulting total in weight of passengers and extra gear.



FEBRUARY 1964													
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winter fishing

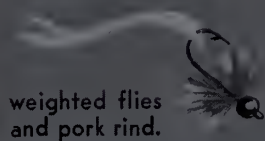
TRY:



live minnows
hooked through lips;

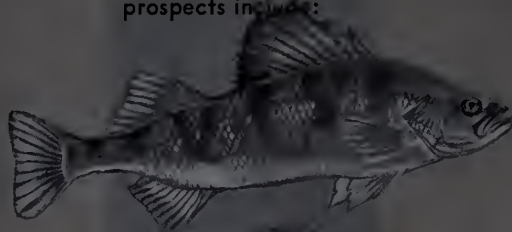


small
pieces of
frozen shrimp;

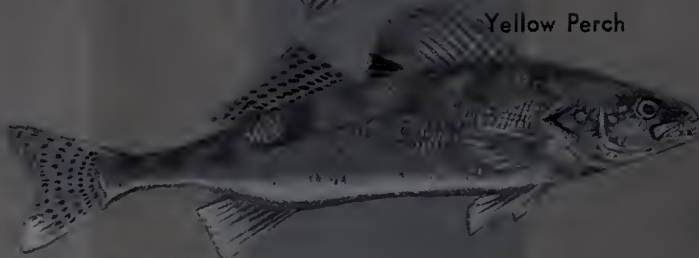


weighted flies
and pork rind.

Cold-weather fishing
prospects include:



Yellow Perch



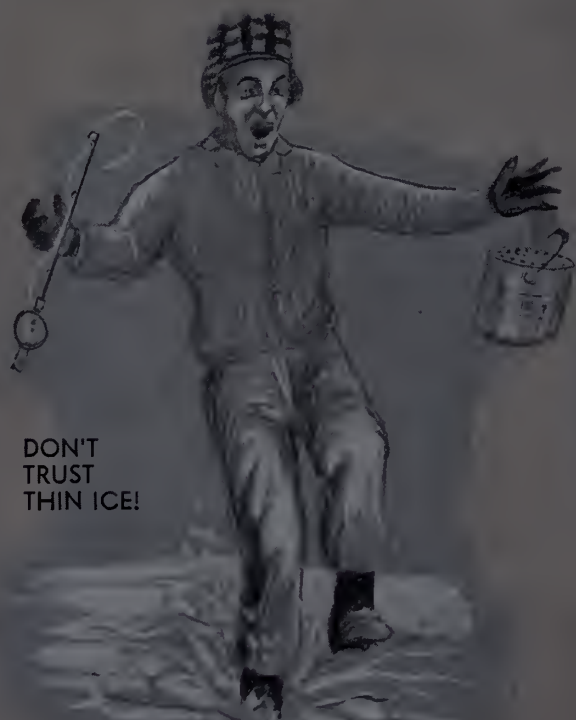
Walleye



Crappie



Pickerel
Pike
Muskellunge



DON'T
TRUST
THIN ICE!

Fish deep and
fish slowly; give
them time to make
up their minds.



D. RAVER